

**The State of Arizona
Government Information Technology Agency
A Recommended Migration to a Statewide Converged Network
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Introduction

Internet technology has become the greatest business enabler of our time and one the Public Sector is rapidly embracing globally. Federal, State and Local Governments as well as educational institutions are leveraging best practices and lessons learned from the private sector to understand how they are using internet business solutions, converged applications and converged data and voice networks to reduce costs, increase employee productivity, increase constituent service availability and identify new opportunities for economic development.

Since its inception, Cisco Systems Inc. (Cisco) has embraced Internet Technology as a strategic tool for business improvement. Cisco has made it a practice of using its own technology and in 2000, began the migration of its existing PBX telephony systems to a converged voice and data network to test and strengthen what was believed by Cisco as a technology that would change telecommunications forever. Cisco's migration to a converged network with IP Telephony as a first mission-critical application was a phased migration which was rolled out worldwide to Cisco's 40,000 employees. The phased migration began in October 2000 with an enterprise-wide deployment at Cisco's San Jose, California headquarters campus and within the next twelve months, 55 buildings and nearly 20,000 users spread out over a two-mile radius were migrated from disparate data and voice networks to a converged data and voice network. This was the largest deployment of LAN infrastructure and IP Telephony in industry history.

Cisco has developed a 130 page case study on its own migration from a traditional PBX telephony environment to a converged network providing lessons learned in five key areas: Pre-Project Planning, Migration Planning, Implementation, Ongoing Support and Final Conversion. The Cisco Case Study is available in its entirety for review by the State of Arizona and can be obtained by contacting Cisco Senior Account Manager, Rick Blankenship at 602.778.2033. It is our objective to share through this document a synopsis of the lessons learned from Cisco's own migration as well as those learned by Cisco in its role as a trusted advisor to governments on similar convergence migration initiatives in the hopes of sharing one simple message. An enterprise migration from disparate data and voice networks to one converged data and voice network is an initiative which has been successfully completed by organizations in both the private and public sector. In addition, approaching such an initiative in an intelligently designed phased approach allows for organizations to quickly realize maximized economic benefit in the form of cost savings and drastically reduces perceived risks associated with the deployment.

A Phased Approach - Maximizing Benefits and Reducing Risk

Large migrations to converged networks, such as the State of Arizona's desire to move to a statewide privatized government telecommunications network have been most successful and beneficial by approaching such an effort via a phased migration strategy. Past experiences have demonstrated that all departments, buildings and employees that come under the direct jurisdiction of the State of Arizona should be migrated within two phases (Phase1, Phase2) and that each phase should have approximate time frames of eighteen to twenty-four months. When large enterprises such as the State of Arizona look to the deployment of a converged data and voice network, the most difficult aspect of such a migration can be overcoming "status quo" and cultural change. The rollout of a pilot deployment has been instrumental in overcoming such a challenge. A pilot deployment, typically launched for sixty to ninety days should be used as a vehicle to demonstrate a successful converged deployment and how converged applications can be used to simplify day-to-day operations, increase employee collaboration, reduce costs and increase productivity. In order to ensure a successful pilot deployment, it is recommended that the State of Arizona identify the largest and most network ready department/building to showcase this technology. Other factors which the State of Arizona should consider when selecting a pilot environment include number of employees impacted, network quality of service readiness and department dispersion.

Upon migrating all existing employees, departments and buildings to the converged data and voice network, other entities not traditionally considered to be under the jurisdiction of the State of Arizona Government such as City Governments, County Governments, K-12 Educational Institutions and Universities should be given the opportunity to leverage the State converged data and voice network for their own telecommunications and application needs. Those entities who might already have a converged network but might be interested in leveraging the state's deployment of converged applications such as IP Telephony, IP Audio Conferencing, IP Video Conferencing, Voice over IP or IP Call Center solutions should be able to do so as well. The State of Arizona and these entities have an opportunity to establish a shared-cost/shared-benefit model which would allow for the State of re-coup some of its investments and allow these entities to reduce their capital and operational costs by leveraging the investments already made by the State for its statewide converged network.

Phase 1

Past experiences have demonstrated that the State of Arizona is likely to receive the greatest benefit by defining an initial phase (Phase 1) where

- (i) The State deploys a centrally located core converged network from which to extend from.
- (ii) The State deploys the central-core converged network and one

mission-critical application - IP Telephony, to the greatest number of employees possible in contained geographic locations to increase employee productivity and enable cultural change.

- (iii) The State maximizes cost takeout by decommissioning legacy telephony equipment and the elimination of costly network maintenance costs.

At Cisco, it was evident that the company was going to realize its greatest economic benefit by first migrating the San Jose Campus to a converged data and voice network. The San Jose campus accommodates nearly 50% of Cisco employees. By migrating the San Jose campus first, Cisco was able to remove twenty-two Expansion Port Network (EPN) PBXs and ten-thousand legacy telephones that were counted, packaged and returned along with two-thousand five hundred ancillary parts and components. The decommissioning of these large volumes of third-party PBX equipment early in the enterprise migration lead to Cisco quickly realizing significant cost savings in its migration efforts.

Phase 2

Once Phase 1 is deployed and the state departments begins to realize cost savings, the State should consider a Phase 2 which includes parallel paths to

- (i) Migrating all State buildings and employees not migrated in Phase 1 to a converged data and voice network.
- (ii) Begin the deployment of internet enabled real-time, mission critical and data applications including Voice over IP, Video Conferencing, Audio Conferencing, Consolidated IP Call Centers, Internet Applications, and Intranet Applications.

Cisco and other leading private and public sector organizations have traditionally realized over fifty percent of Internet Technology benefits by web-enabling critical business functions. Business function web-enablement is obtainable because of the web foundation and converged applications available via the converged network. In fiscal year 2002, by leveraging the converged network, deploying converged applications and intrnet enabling Cisco's key business functions in the areas of Customer Care, Supply Chain Management, Workforce Optimization and eLearning, Cisco realized \$1.94 billion dollars in benefits – over seventy-five percent of which was measured as hard-dollar cost takeout to execute these functions.

A Recommended Migration Plan for the State of Arizona

The following is a migration plan which allows the State of Arizona to migrate its existing disparate voice and data networks to a statewide converged data and voice network – allowing for maximized cost savings early in the migration plan and mitigating risks associated with the migration. This migration plan is based upon a two phase approach which allows for all state buildings, departments and employees to be

migrated onto a statewide converged network within four years of the project start date. In addition, this plan provides for each department and state employee to have access to productivity applications including IP Telephony, Video Conferencing, Audio Conferencing and Computer Telephony Integration (CIT) as well as the opportunity for departments to internet enable key business functions in the areas of Customer Care, Supply Chain Management, Workforce Optimization and eLearning. This migration plan is depicted in Figure 1.

Phase 1 – 24 Months

Objective: Deploy a Converged Network and IP Telephony to all State of Arizona Employees at the Phoenix and Tucson Malls

Approach:

- (i) Deploy Phoenix and Tucson Mall Core Converged Data and Voice Network
- (ii) Conduct ninety-day IP Telephony Pilot (one building or one department).
- (iii) Migrate all Phoenix Mall buildings from legacy telephony to IP Telephony at a rate of one building every week.
- (iv) Migrate all Tucson Mall buildings from legacy telephony to IP Telephony at a rate of one building every week.
- (v) Decommission all Phoenix and Tucson Mall legacy telephony equipment and maintenance contracts

Milestones:

- Month 6 Deployment of Infrastructure for data and voice quality of service bandwidth
- Month 9 12 buildings migrated
- Month 12 24 buildings migrated
- Month 15 36 buildings migrated
- Month 18 48 buildings migrated
- Month 21 Phoenix Mall Migration Complete
- Month 23 Tucson Mall Migration Complete
- Month 24 Decommission of legacy telephony application and maintenance contracts

Phase 2 – 24 Months

Objectives:

1. Deploy a Converged Network and IP Telephony Deployment to all State of Arizona Employees:
 - In Phoenix and Tucson who are not on the Malls.
 - All Non Phoenix and Non-Tucson state department buildings
2. Deploy Converged Internet Applications to Phase 1 Malls.

Approach:

- (i) Migrate all Phoenix and Tucson off-mall buildings from legacy telephony to IP Telephony at a rate of one building per week.
- (ii) Migrate all non Phoenix and non Tucson buildings from legacy telephony to IP Telephony at a rate of one building per week.
- (iii) Decommission all Phoenix and Tucson off-mall and statewide legacy telephony equipment and maintenance contract
- (iv) Develop and Deploy prioritized, high-impact mission critical, real-time and data converged applications to Phoenix and Tucson Malls (IP Video Conferencing, IP Audio Conferencing, IP Call Center).
- (v) Develop and Deploy prioritized, high-impact mission critical, real-time and data converged applications to non-Phoenix and Tucson Malls buildings (IP Video Conferencing, IP Audio Conferencing, IP Call Center).

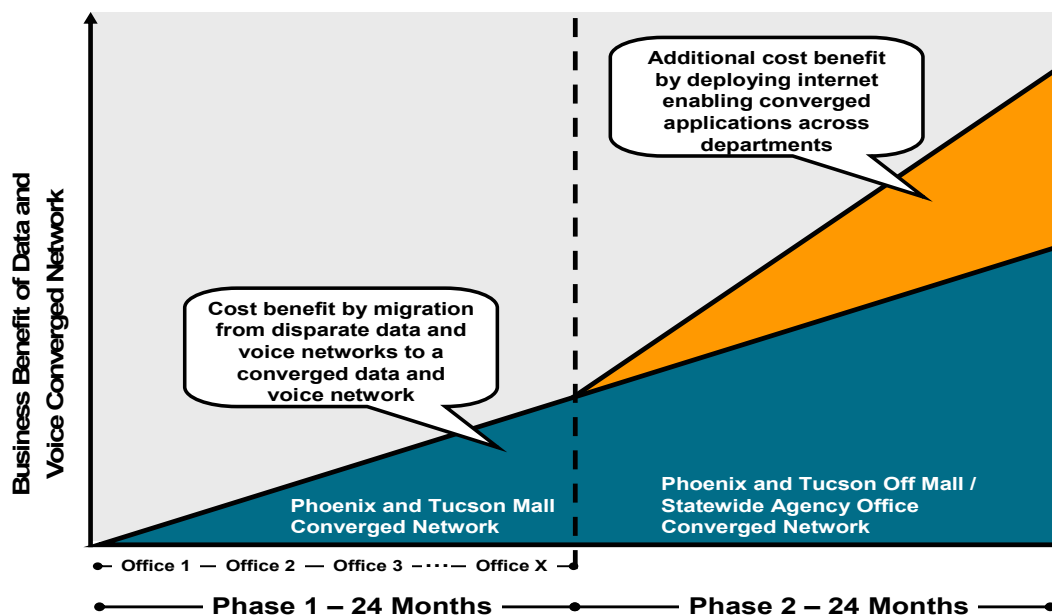


Figure 1 – State of Arizona Possible Migration Plan

Information Request

For additional information, or for clarifications to materials and information presented, please contact Cisco Senior Account Manager, Rick Blankenship at 602.778.2033.